

## List of Contents

### Volume 2 Number 1

#### *Papers*

M. C. LEU	1 Robotics software systems
P. K. WRIGHT	13 A manufacturing hand
J. A. BUZACOTT	25 Modelling manufacturing systems
S. TAKATA, M. OGAWA, P. BERTOK, J. OOTSUKA, K. MATUSHIMA and T. SATA	33 Real-time monitoring system of tool breakage using Kalman filtering
S. MAKINOCHI and K. YAMAGATA	41 Computer numerical control for assuring the machining accuracy of contour milling
H. ASADA and Y. SAWADA	49 Design of an adaptable tool guide for grinding robots
S. H. KIM and N. P. SUH	55 Application of symbolic logic to the design axioms
T. WATANABE and M. SAKAMOTO	65 On-line scheduling for adaptive control machine tools in FMS
A. ETZIONI and P. JARGOWSKY	75 The two-track society
	83 NTIS Reports
	i New patents and published patent applications from the United States and over 30 other countries
	xi Software Survey Section

### Volume 2 Number 2

#### *Papers*

M. E. MERCHANT	89 Computer-integrated manufacturing as the basis for the factory of the future
J. HATVANY	101 Intelligence and cooperation in heterarchic manufacturing systems
M. GOLDSTEIN, P. K. WRIGHT and D. A. BOURNE	105 A fast algorithm for high accuracy gauging using computer vision
G. SPUR, I. FURGAC, A. DEUTSCHLÄNDER, J. BROWNE and P. O'GORMAN	115 Robot planning system

L. M. SWEET

D. D. GROSSMAN, R. C. EVANS and  
P. D. SUMMERS

S. P. PATARINSKI, M. S. KONSTANTINOV,  
V. B. ZAMANOV and D. N. NENCHEV

B. GAÁL and T. VÁRADY

## Volume 2 Number 3/4

### *Editorial*

L. S. HAYNES

### *Papers*

J. F. BLOODGOOD

G. G. HUNT and  
J. R. TOMLINSON

M. L. FITZGERALD and  
A. J. BARBERA

D. GROSSMAN

U. REMBOLD, C. BLUME  
and B. J. FROMMHERZ

K. LAU, R. HOCKEN  
and L. HAYNES

N. G. DAGALAKIS and  
D. R. MYERS

D. S. ACKERSON and  
D. R. HARRY

J. C. COLSON and  
N. D. PERREIRA

S. MOHRI, K. TAKEDA,  
S. H. K. MATSUZAKI and  
Y. HYODO

125 Sensor-based control systems for arc welding robots

135 The value of multiple independent robot arms

143 Structural properties in kinematics of robots, articulated  
mechanisms and prosthetic arms

149 Experiences and further development of the FFS (Free-Form  
Shapes) CAD/CAM system

155 NTIS Reports

161 Opportunities and issues in robot standards

165 An overview of standards development for robots and robotic  
systems

191 EIA project 1393: a high level communications standard

201 A low-level control interface for robot manipulators

215 AML as a plant floor language

219 The proposed robot software interfaces SRL and IRDATA

227 Robot performance measurements using automatic laser  
tracking techniques

237 Use of coherence analysis for the evaluation and adjustment  
of robot gear performance

247 Theory, experimental results, and recommended standards  
regarding the static positioning and orienting precision  
of industrial robots

261 Quasi-static performance of robots

279 Robot language from the standpoint of FA system  
development—an outline of FA-BASIC

## I Software Survey Section